DISCOVERY

Does government participation matters in determining economic growth in Nigeria?

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ABSTRACT

The study explores the relationship between government participation and its implication on economic growth, the aim being to estimate the optimal size of government participation in Nigeria using data from 1981 to 2020. It adopts the ARDL model to analyze the data due to the mixed order of integration in the variables. The result reveals that government participation in the economy by way of spending and tax has positive and significant impact on economic growth. The estimated model of the study met both conditions of cointegration and that economic growth proxy by GDP at current price which is expected to adjust to stability within a circle from the errors of instability generated by government participation by 32.66 percent. The result further reveals governments most desirable level of participation in the economy to maximize growth is 62.77 percent of total resources. It conclude that government participation is a true determinant of economic growth in Nigeria, hence the need to allocate revenue to productive economic activities.

Keywords: Government size, Economic growth, Armey curve, Nigeria

Jel classification: Ho H_2, H_3, H_5, H_6, H_{10} H_{11}

1. INTRODUCTION

The acceptability of the Keynesianism is the tradition that government manipulation of the fiscal policy in achieving economic- wide targets is paramount thus, has unraveled many roots to *economic Damascus* by scholars with many followers dominating both in policy and academic. This Keynesian view which contradicts the classical postulates has link with social optimality approach to public finance incorporating market failure and role of government into what could be referred as the new Keynesianism (Baghebo & Yousuo, 2019). The question of the most desirable outcome of government participation that will enhance growth is of great concern to economists across the globe. By optimum, we refer to the maximum share of government spending in promoting economic growth in an economy. We believe in the principle of diminishing returns wherein, a continuous participation of government in the economy holding every other economic activity constant will enhance economic growth positively, (an increase at the initial stage) and later sustain/stabilize (constant return) its impact,

any further injection/government participation will rather deplete output. Our concern therefore, is the size that will stabilize and/or optimize economic growth in view of government engagement or spending in the economy.

1.1. Objective of the study

The fundamental reason to investigate the size of government expenditure that maximizes growth in Nigeria is as follows:

i.   To examine the impact of government spending and tax on economic growth.
ii. To determine the optimal size of government expenditure that maximizes economic growth.

2. REVIEW OF RELATED LITERATURE

2.1. Conceptual Review

As opined by Cullis and Jones (2009), optimum implies efficient and size refers to the number of residents and total expenditure on public goods that will sustain economic growth in an economy. Economic growth as the third target of macroeconomics has remained the focus of policy makers and scholars alike, this is a much as new growth theories focuses on the importance of technological change. In this study, we dwell on responsibility of government in promoting economic growth. Scholars have presented empirical evidences to the effect that the size of government to a greater extent adversely determine the level of employment, which in turn predict the output level of the economy. According to Feldman (2006), large government likely enhances unemployment, especially women and low skilled citizens. The action of increasing the size of government participatory level in the economy crowds out private sector investors, thereby technically reducing progress, growth and international competitiveness.

The concepts of efficiency size of government emerge in the early sixties after the sermon of deficit financing had been preached by Keynes (1936) in his General Theory of income, interest and employment. Critical evaluation of these theories is credited to Scully (1994), Barro (1990), Ram (1986), Armey (1995), etc. Most empirical literature reveals the negative impact of large size of public spending on economic growth. Theoretical literatures provide two main categories of arguments that explain public sector spending size across time and economies. The first category began with the Wagner's law, which emphasized on the elasticity of governmental expenditures compared to GDP is greater than one. As countries become more developed, the demand for public goods rises in consonance with tax revenue to fund production of goods. Conversely, the Baumol cost concept, enlightened that a proportion of government expenditure upsurges as the rise of government workers salareis is more than their efficiency, while the price associated with public services demand is comparatively non-elastic (Beghabo & Yousuo, 2019). The second category of arguments is political. For election purposes, the fiscal policies, especially those concern expenditures, tend to be inconsistent in time and focuses on greater deficits of spending. Armey (1995) promoted the existence of an finest size of government as represented by his curve. He illustrated the presence of government contribution to the GDP that maximizes growth. Heitger (2001), drew a separation between government consumption and investment spending. According to Yavas (1998), increase in the government size increase/decrease output at low/high output level. That due to lack of infrastructure and public goods, most developing countries enjoyed high public participation in the economy as compared to developed countries. In another development, Suleiman (2009), opined that government participation rate and its implication on growth results to fiscal management problem in most emerging economies due to external shocks and volatility of finances, thus role and size of government calls for adjustment and stabilization programs. In 2019, Schmidt and Wigerstedt reviewed findings of previous research on the relationship growth and government size from 2000 to 2017 for EU countries, established a highly questionable negative effect of government size on growth.

Nigeria as a developing economy with features of high rate of unemployment and ever-increasing size of the government expenditure, all forms of revenue raise from taxes have potential disincentive effects and the latter effect being the one of crowding out. Therefore, adhering to the principle of increasing size of government spending is consequential to growth is most necessary. Ajie, Akekere, and Ewubare (2009), opined that in a developed economy through economic equilibrium, stimulus investment activity, and so on, the size of the government maintains a smooth rate of growth. They further emphasized that in the less developed economy, government size plays active role in reducing regional disparities, developing social overheads, creation of infrastructure of economic growth in the form of transport and communication facilities, education and training, growth of capital goods industries, basic and key industries, research and development, etc. Hence, the government size plays vital role in stimulating savings and capital accumulation in the context of taxation and other measures being pursued by government, thereby creating leverage in coordination between different objectives and institutions.

The Nigeria experienced in the 1970s to late 90s, and from early 2000 to date by increasing size of government in the economy via deficit financing contradicts Keynes principle. Rahmanti and Horn (2010), examine expenditure efficiency and the optimal size of government in developing economies from 1990 to 2003, using Data Envelopment Analysis (DEA) discovered that a critical level of efficiency is required for government expenditure to propel growth, and beyond that critical level greater efficiency lower the efficiency size of government required to maximized growth. Nigeria was among the sixty-three (63) economies in their analysis; however, they fail to establish an optimal level of the government expenditure that maximizes growth of the economy. Reason behind this failure was not explained, but may be as a result of the period under review or lack of viable data.

Public choice scholars argued that a failing of democratic process like that of Nigeria is that of exploiting fiscal illusion by politician. Politicians gain momentum in promoting little or zero tax and fiscal rascality. In as much as we sustain Keynes principle of government participation in the economy which has resulted to fiscal illusion in most developing economies and literature on efficiency level of government in Africa and specifically, Nigeria is rarely accessible if available, necessitates this study to cover this literature gap by investigating governments participatory efficiency in the economy with its implication on economic growth in Nigeria. Addressing this problem, we answer these questions; what is the governments participatory level that maximizes growth. And what complements government expenditure in promoting growth in the economy.

2.2. Theoretical Review

The Armey Hypothesis

Armey established the fact that an increase in the share of government spending in GDP can be translated into social welfare and transformational growth level, beyond the said point wherein additional spending will be generating a reversed effect (Armey, 1995). In a state of lawlessness, output per capita will be low, similarly, in situations where all the input and output decisions are made by government, output per capita may be likewise low and while in a mix economy, output is mostly larger. The output-enhancing landscape of government dictates the magnitude of the government and the size associated with expansions inproductivity. At some point, however, further expansion of government does no leads to output expansion, as the growth-reducing characteristics of government grow larger, and the growth enhancing features of government are moderated. Nonetheless, further expansion of government has contributed to economic unproductivity and decline (Armey, 1995).

Why this scenario? In a world without government, there absence of law and order, as well no protection of property and rights of citizens. Bullies and strong people can steal the assets of weaker persons with impunity. There are very little incentives to save and invest because the threats of expropriation are real and constant. Moreover, irrespective of some collective actions by the economic players, there are no protections from superior bullies (foreign nations), or pirates on the high seas (Baghebo & Yousuo, 2019). The collective actions of the players also facilitate the construction of roads that improve transportation that lowers trading costs. In any case, government can also create a reliable middle point for exchange in other to further the development the gain from trade. Thus, the creation and early growth by government is connected with the increasing levels of income and progressive rates in economic growth and development (Vedder & Gallaway, 1998). As government's progresses, diminishing returns and marginal utility begins to set in and became operational. Moreover, the taxes levied and the continuous borrowing to finance government budgets imposes increasing burdens on both the government and citizens. New taxes, like income taxes, are added to lower consumption levies that will increasingly have adversative effects on human commercial behavior. Tariffs are raised to thwart trade at this point and new government spending will no longer enhance economic growth. In situation where government is small, political activities aimed at income redistribution via tax policy or through payments to the poor are made modest in magnitude. As transfer payments and progressive taxes grow in strength in large government, the undesirable effect of government spending begins to magnify. However, in a very small measure, welfare payments help the poor which invariably do not dramatically influence behavior. As payments grow larger and more elaborate, it leads to pronounced work impediment effects. Thus, it is expected that as government engrosses increasingly in large percent of output, incremental spending actually have an antagonistic effect on output (Vedder & Gallaway, 1998; Baghebo & Yousuo, 2019).

The Armey Curve do not contemplate that all governments are bad. Conversely, some governments serve for the good of public interest. Nonetheless, just like most every good thing, too much of it are damaging. For example, drinking a glass of red wine daily may be good for human health, but drinking 10 glasses may be harmful, so government in moderation is good for the economy while in excess it is bad. Hence, as increase in spending becomes the norm, additional projects financed by government become progressively less significant and productive, because the taxes and borrowing imposed to finance government executions increases the burdens. As such, the peripheral benefits from increased government spending become unattractive and eventually becomes zero (point G* in Figure 1).
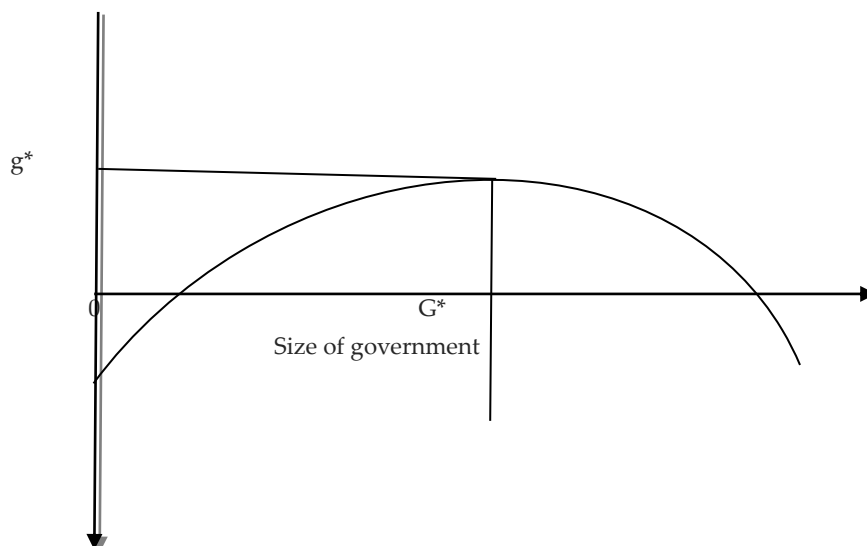
Figure 1: Government spending and the economy (the Armey Curve). Rate of economic growth

As opined by Chao and Grubel (1998), several forces shape afore mentioned inverted U curve namely; they stressed that the law of diminishing returns leading to additional government spending exists and additional withdrawal of resources from the private sector more and more occurs at the cost of projects with ever-higher returns. Besides, in order to raise revenue to finance government spending, taxes have to be imposed, which reduces the private sector's incentives to work, save, invest, and take risks. Nevertheless, some of the spending programmes can also have disincentive effects if they lower the risk of economic life. These effects change economic behaviour of individuals, which decreases the effective supply of labour and entrepreneurship. As Chao and Grubel point out, all these forces reduce economic growth. Milton Friedman, comparing the United States and Hong Kong, put it well recently: Government has an essential role to play in a free and open society. Its average contribution is always positive; but it is believe that the marginal involvement of going from 15% of the national income to 50% has not been destructive (Friedman, 1997). Friedman opined that the beginning of where governments role in economic growth is undoubtedly be somewhere between 15% and 50% of the national income or productivity.

2.3. Empirical Review

Husmain (2011) investigated if the size of government is optimal in Paskistan with balance budget assumption, applying the Scully (1994) model for the period of -thirty-three years (1975-2008). The time series analysis reveals that government dimensions are optimized when public overheads stand at 21.48% of GDP. The estimated verge is lower than the current size of for example government of Pakistan. However, the variance between current and the optimal size is identically small. It is suggested that to enhance efficacy of public sector is the better option than large fiscal adjustments to improve the level of economic growth as average tax weight does not far surpass the optimal level of government expenditures.

Alimi (2014), empirically tested the validity of existing theory in Nigeria from 1970 to 2012 by employing three estimation equations. For the size of government, two measures were considered (i) share of total expenditure to gross domestic product, and (ii) share of recurrent expenditures to gross domestic product. Furthermore, Husmain (2010), adopted estimated real GDP (excluding government expenditure element) as a variant to measure of economic growth other than the real total GDP in estimating the optimal level of the government spending. He established that the inverted U-shaped curve that existed for the two measures used for government size and the estimated best shares are 19.81% and 10.98% respectively. Finally, in adopting the real GDP (exception of government expenditure component), the optimum government size came up to be 12.58% of GDP. The authors' analysis showed that the real share of spending by government on the average (2000-2012) was about 13.4%. This study adds to the literature that confirms that the peak government sizes around the world exist not only for developed economies; rather it is also for developing economy like Nigeria.

Turan (2014) examined the connection between government size and the growth of the economy; he as well evaluated the optimum size of the government of Turkey. He used two parameters. He established that the efficiency size of government differs between 8.8% (15.4) to 9.1% (17) of GDP for the period between 1950-2012 (1970-2012) fiscal years depending on the measures. The optimum level of the essential government expenditures except the interest payments was 14.4% of the country's GDP. The tangible

rates are well beyond the estimated ideal for a long time. The result of the quadratic requirements similarly suggests that Armey curve is valid for Turkey during the period under examination. The study found that the estimated efficiency size of the government from different qualifications is consistent with each other, but there is a considerable variation in the size when different time periods are used. This goes to shows that the Armey curve is sensitive to change during the periods under study. It worth mentioning here that literature on Armey curve or governments optimum sizes and its growth maximization in Nigeria are scarce. This is the gap this study tends to cover within a period of thirty-five years (1981-2015).

Nyasha and Odhiambo (2019), surveyed the causal relationship between size of government and economic growth for developing and developed countries. The outcome of the causation between the two variables and their interconnectivity variables has four possible or probable outcomes. These are based on the dissimilarities in the countries or regions under study, the methodology used, proxies, the data set used, and the time frame considered in the study. However, of the four determinants used, the most prominent is the second opinion or view that was aimed at validating the unidirectional Granger-causality from economic growth to government size, followed by the bidirectional Granger-causality category. They concluded that the fundamental determinants of the connections between government size, economic advancement and growth are far from being definite and specific.

Baghebo and Yousuo (2019), investigated public expenditure size of government and economic growth in Nigeria from 1981 to 2017. The aim being to determine the efficiency level of government with respect to expenditure that will enhance growth in the economy. Time series data were employed in the analysis with the application of the classical least square of multivariate model. The estimated result shows that government expenditure is a true determinant of economic growth in Nigeria with a marginal effect of .570406 and significance at 5% level of significance, while private investment has an inverse relationship with economic growth and not statistically significance at same level. The coefficient of determination and f-statistics also reveals that the estimated regression has a fair fit and generally significance. The computed government expenditure size of the country is 75.3% which is expected to be devoted on productive activities that will enhance the economic decision of other economic agents in promoting growth and industrialization.

Chen (2020), studied the relationship between government size and local economic growth in China. Annual panel data of 29 provinces, municipalities and autonomous regions from 2007 to 2017 were employed with fixed effect model estimation. The study concluded with significant positive correlation between the scale of local government and local economic growth. Regional heterogeneity regression estimation of the study also found an insignificant relationship between government size and economic growth in the eastern regions of China. Meanwhile, the relationship is significant in the central and western regions, and shoed positive correlation.

3. METHODOLOGY

The data for this study were collected from secondary sources, majorly; the Central Bank of Nigeria (CBN) Statistical Bulletin. Variables considered include government expenditure, GDP at current price, gross fixed capital formation, and price level. The data range covered from 1981 to 2020. The choice is necessitated by the availability of data and existence of crucial fiscal measures by government within the period. Furthermore, time series data seeming to be non-stationary at level and in order not to run into spurious analysis we carried out a stationarity test on the data which outcome will determine the right method of analysis adopted in the study. As stated by Yousuo (2021), if the variables unit root result shows that all the variables are stationary, then the classical least square is the most suitable method of analysis otherwise the Johansen test. However, in a case of mixed variables of stationary and non-stationary, the suitablemethod of analysis is the ARDL or bound testing method. Furthermore, if the bound test is cointegrated, we estimate vector error correction model (Long run) and ARDL (short run) otherwise, ARDL model only is estimated.

3.1. Model Specification
With reference to the above theoretical framework of Scully (1994, 2008), adopted by Baghebo and Yousuo (2019), we specify our model as follows;

$$\text{LnGDP}_t = \text{LnA} + \beta \text{Ln (GS)} + \alpha \text{LnTAX}_t \qquad\qquad 1$$

Introducing the error term, making eqn. 1 more econometric result to eqn. 2

$$LnGDP_t = LnA + \alpha LnGS_t + \beta_1 LnTAXt + \mu \qquad\qquad 2$$

Where GDP is GDP at current price proxy for economic growth; GS is government total spending proxy for government size; TAX is tax, t subscript stands for time period and μ is the random term which is assumes to independently and identically distribute (iid). Optimum level of the government spending to maximize growth is obtained by differentiating equation 2 to have

$$GEXP^* = \frac{\alpha}{(\beta+\alpha)} \qquad\qquad 3$$

The estimate of eqn. 3 is the optimal level government that maximizes growth in the economy, thus addresses objective two of this study.

4. RESULT AND DISCUSSION

The stationarity test results

Variables	ADF Stats	Level CV	1ST Diff CV	Order of integration
LGDP	-1.4098; -3.3079*	-2.9411	-2.9411	I(1)
LGS	-3.9568	-2.9484		I(0)
LTAX	-1.3258; -9.3200*	-2.9484	-2.9484	I(1)

From the computed stationarity test results above it indicates that government spending is stationary at level. This conclusion was on the ground of the comparison between the ADF statistics of the variable and the corresponding 5 percent critical. Given the fact that the absolute value of the ADF statistics is greater than the 5% critical value (3.96 > 2.95), we reject the null of unit root problem and conclude that the data variable is stationary, and it has no unit root problem at level. For variable LGDP and LTAX the result reveals the existence of unit root problem at level as the data variables are not stationary, based on the fact that the absolute values of the respect ADF statistics are less than their corresponding 5% critical values (1.41< 2.91 for LGDP; 1.33 < 2.95 for LTAX). However, after differencing the data variables they become stationary, hence, LGDP and LTAX integrated in order one while LGS integrated in order zero.

We now have a situation of mixed order of integration and being that none of the data variable is in order two, following Pesaran et al., (2001), we therefore adopt Autoregressive and Distributed Lag Model in analyzing the relationship between the variables. Furthermore, it is empirically established that the ARDL model to greater extent is more efficient that the Johansen cointegration method of estimation in terms of small sample size analysis. The method will aid us in evaluating the true impact of government participation in the economy on economic growth in both short and long run.

Table 4.1A: Bound Test Result

Null Hypothesis: No long-run relationships exist		
Test Statistic	Value	k
F-statistic	5.79	2
Lag Selection	(1, 0, 0)	
Significance	I0 Bound	I1 Bound
5%	3.79	4.85

Source: Author's Computation

The decision rule that guides the bound test on the presence of long run relationship between variables is characterized by the f-statistics and the 5% critical values of the lower and upper bound of the statistics. If the f-statistics and greater than the 5% critical value of the upper bound (I1), then there is long run relationship between the variables, and the model estimated has met the first (necessary) condition of long run relationship or cointegration. On the other hand, if the f-statistics is less than the 5% critical value of the lower bound (I0), then there is no long run relationship between the variables, and as such there is no need for further analysis of cointegration because the estimated model fails the first condition of cointegration. However, a situation where f-statistics falls in between the 5% critical values of the lower and upper bounds, the test is inconclusive and is at the discretion of the researcher to choose whether to continue or not.

In this case the computed f-statistics (5.79) is greater than the I1 bound (4.85), hence, the model met the necessary condition of cointegration and that the estimated model is significant with a good fit. We therefore proceed to examine if the connectedness between the variables also meets the second condition of cointegration with sufficient evidence by estimating the cointegration and long run equations as shown in table 4.1B

Table 4.1B: Cointegration and Long run Results

Dependent variable	LGDP			
Model selected	ARDL (1, 0, 0)			
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LGS)	0.207216	0.047310	4.379923	0.0001
D(LTAX)	0.122909	0.055595	2.210810	0.0339
CointEq(-1)	-0.326562	0.062735	-5.205385	0.0000
Long Run Coefficients				
LGS	0.634539	0.132922	4.773760	0.0000
LTAX	0.376374	0.128643	2.925729	0.0061
C	16.527819	2.423236	6.820558	0.0000

Source: Author's Computation

The above estimates show the short and long term effects of government participation in the economy. The short run equation reveals that government participation measure by tax and government spending has positive and significant impact on economic growth. Thus, on the average, a unit change in government participation in the economy will enhance the level of economic growth averagely by 0.2072 and 0.1229 for government spending and tax respectively. Both variables have p-value less than 0.05, which affirmed that Keynes postulation on need for government get involved in the production activities of the economy to boost economic growth. This finding is in line with Beghabo and Yousuo (2019, Chen (2020), on the positive relationship between government participation and economic growth in Nigeria and China. Furthermore, the result also reveals that the size of government participation in the economy to boost economic growth is 62.77 per cent. Government spending of revenue that exceeds this percentage will result to fiscal illusion, crowding out productive private sector participation in the economy and retardation of growth. More so, most African countries found themselves in this mess due to high rate of rent seeking, conflict of interests as political office holder are out to amass private wealth at the expense of social welfare.

The coefficient of adjust of the ECM has the right sign and also significant, which implies that the estimated model met the sufficient condition of cointegration. Economic growth is expected to adjust to stability or equilibrium from the errors of government participation in the economy by 32.66 percent. Thus, government participation has a long term effects on economic growth. The long run equation estimates affirm this claim with both spending and tax having a positive and significant impact on economic growth with an intercept of 16.5278. In the long run a unit change in government participation in the economy, ceteris paribus, the economy will experience a growth of 0.3764 and 0.6345 resulting from tax and spending respectively. The optimal size remains 62.77 percent, and the estimated model is generally significant at 5% level.

5. CONCLUSION

The findings of the study met all objectives; that government spending is a true determinant of economic growth, the efficiency of government participation in the economy to maximize growth is 62.77 percent which is quite reasonable in a developing economy like Nigeria striving to stabilize her economy from the quagmire of international deficit. Nigeria as a developing economy over the years has striven to foster and sustain growth by introducing different economic policies and developmental plans. The measures hinges on the effectiveness of macroeconomic policy stabilization, wherein fiscal policy is the armament of her defense. There is no gainsay on the effectiveness of government participation in promoting growth, however, the state spending should revolve within its bound to avoid crowding out of the generative sector of the economy from fiscal illusion of the political class. And the aftermath effects of such fiscal illusion of resource idleness, unemployment and inflation increase, growth retardation, etc. We believe that the manipulation of government participation in terms of spending will continue to enhance growth at a margin of .6345, which is a good stand for an emerging economy to gear towards industrialization.

Based on the above findings we therefore, recommend as follows:

i. From the current financial act of 2022 which emphasized on taxing all sources of income can only be growth driven if government utilizes same resources in creating enabling environment to drive the efficiency of the private sector. This can be realized through the provision of critical infrastructure in the economy

ii. Government participation should be seen as a productivity drive of the economy by politician through efficient allocation and utilization of limited resources to compliment productive private sector.

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Conflicts of interests

The authors declare that there are no conflicts of interests.

Data and materials availability

All data associated with this study are present in the paper.

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